

1

SEQUENCE LISTING

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SRINIVASAN, SUBHA

<120> NOVEL FIBROBLAST GROWTH FACTORS

<130> BERLX 87

<140> 10/005,646

<141> 2001-12-07

<150> 60/251,837

<151> 2000-12-08

<160> 16

<170> PatentIn Ver. 2.1

<210> 1

<211> 636

<212> DNA

<213> Unknown Organism

<220>

<221> CDS

<222> (1)...(633)

<220>

<223> Description of Unknown Organism: FGF-21 nucleotide
sequence

<400> 1

atg gct ccc tta gcc gaa gtc ggg ggc ttt ctg ggc ggc ctg gag ggc	48
Met Ala Pro Leu Ala Glu Val Gly Gly Phe Leu Gly Gly Leu Glu Gly	
1 5 10 15	

ttg ggc cag cag gtg ggt tgc cat ttc ctg ttg cct cct gcc ggg gag	96
Leu Gly Gln Gln Val Gly Ser His Phe Leu Leu Pro Pro Ala Gly Glu	
20 25 30	

cgg ccg ccg ctg ctg ggc gag cgc agg agc gcg gcg gag ccg agc gcg	144
Arg Pro Pro Leu Leu Gly Glu Arg Arg Ser Ala Ala Glu Arg Ser Ala	
35 40 45	

cgc ggc ggg ccg ggg gct gcg cag ctg gcg cac ctg cac gcc atc ctg	192
Arg Gly Gly Pro Gly Ala Ala Gln Leu Ala His Leu His Gly Ile Leu	
50 55 60	

cgc cgc ccg cag ctg tat tgc cgc acc ggc ttc cac ctg cag atc ctg	240
Arg Arg Arg Gln Leu Tyr Cys Arg Thr Gly Phe His Leu Gln Ile Leu	
65 70 75 80	

ccc gac gcc agc gtg cag gcc acc ccg cag gac cac agc ctg ttc ggt	288
Pro Asp Gly Ser Val Gln Gly Thr Arg Gln Asp His Ser Leu Phe Gly	
85 90 95	

2

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atc ttg gaa ttc atc agt gtg gca gtg gga ctg gtc agt att aga ggt 336
Ile Leu Glu Phe Ile Ser Val Ala Val Gly Leu Val Ser Ile Arg Gly
      100      105      110

gtg gac agt ggt ctc tat ctt gga atg aat gac aaa gga gaa ctc tat 384
Val Asp Ser Gly Leu Tyr Leu Gly Met Asn Asp Lys Gly Glu Leu Tyr
      115      120      125

gga tca gag aaa ctt act tcc gaa tgc atc ttt agg gag cag ttt gaa 432
Gly Ser Glu Lys Leu Thr Ser Glu Cys Ile Phe Arg Glu Gln Phe Glu
      130      135      140

gag aac tgg tat aac acc tat tca tct aac ata tat aaa cat gga gac 480
Glu Asn Trp Tyr Asn Thr Tyr Ser Ser Asn Ile Tyr Lys His Gly Asp
      145      150      155      160

act ggc cgc agg tat ttt gtg gca ctt aac aaa gac gga act cca aga 528
Thr Gly Arg Arg Tyr Phe Val Ala Leu Asn Lys Asp Gly Thr Pro Arg
      165      170      175

gat ggc gcc agg tcc aag agg cat cag aaa ttt aca cat ttc tta cct 576
Asp Gly Ala Arg Ser Lys Arg His Gln Lys Phe Thr His Phe Leu Pro
      180      185      190

aga cca gtg gat cca gaa aga gtt cca gaa ttg tac aag gac cta ctg 624
Arg Pro Val Asp Pro Glu Arg Val Pro Glu Leu Tyr Lys Asp Leu Leu
      195      200      205

atg tac act tga 636
Met Tyr Thr
      210

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<210> 2

<211> 211

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: FGF-21 amino acid sequence

<400> 2

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Met Ala Pro Leu Ala Glu Val Gly Gly Phe Leu Gly Gly Leu Glu Gly
  1      5      10      15

Leu Gly Gln Gln Val Gly Ser His Phe Leu Leu Pro Pro Ala Gly Glu
      20      25      30

Arg Pro Pro Leu Leu Gly Glu Arg Arg Ser Ala Ala Glu Arg Ser Ala
      35      40      45

Arg Gly Gly Pro Gly Ala Ala Gln Leu Ala His Leu His Gly Ile Leu
      50      55      60

Arg Arg Arg Gln Leu Tyr Cys Arg Thr Gly Phe His Leu Gln Ile Leu
      65      70      75      80

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3

Pro Asp Gly Ser Val Gln Gly Thr Arg Gln Asp His Ser Leu Phe Gly
85 90 95

Ile Leu Glu Phe Ile Ser Val Ala Val Gly Leu Val Ser Ile Arg Gly
100 105 110

Val Asp Ser Gly Leu Tyr Leu Gly Met Asn Asp Lys Gly Glu Leu Tyr
115 120 125

Gly Ser Glu Lys Leu Thr Ser Glu Cys Ile Phe Arg Glu Gln Phe Glu
130 135 140

Glu Asn Trp Tyr Asn Thr Tyr Ser Ser Asn Ile Tyr Lys His Gly Asp
145 150 155 160

Thr Gly Arg Arg Tyr Phe Val Ala Leu Asn Lys Asp Gly Thr Pro Arg
165 170 175

Asp Gly Ala Arg Ser Lys Arg His Gln Lys Phe Thr His Phe Leu Pro
180 185 190

Arg Pro Val Asp Pro Glu Arg Val Pro Glu Leu Tyr Lys Asp Leu Leu
195 200 205

Met Tyr Thr
210

<210> 3
 <211> S13
 <212> DNA
 <213> Unknown Organism

<220>
 <221> CDS
 <222> (1) .. (510)

<220>
 <223> Description of Unknown Organism: FGF-23 nucleotide
 sequence

<400> 3
 acg cgc cgc cgc ctg tgg ctg ggc ctg gcc tgg ctg ctg ctg ggc cgg 48
 Met Arg Arg Arg Leu Trp Leu Gly Leu Ala Trp Leu Leu Leu Ala Arg
 1 5 10 15

gcg ccg gac gcc gcg gga acc ccg agc gcg tgg cgg gga ccg cgc agc 96
 Ala Pro Asp Ala Ala Gly Thr Pro Ser Ala Ser Arg Gly Pro Arg Ser
 20 25 30

tac ccg cac ctg gag ggc gac gtg cgc tgg cgg cgc ctc ttc tcc tcc 144
 Tyr Pro His Leu Glu Gly Asp Val Arg Trp Arg Arg Leu Phe Ser Ser
 35 40 45

4

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act cac ttc ttc ctg cgc gtg gat ccc ggc ggc cgc gtg cag ggc acc 192
Thr His Phe Phe Leu Arg Val Asp Pro Gly Gly Arg Val Gln Gly Thr
      50                      55                      60

cgc tgg cgc cac ggc cag gac agc atc ctg gag atc cgc tct gta cac 240
Arg Trp Arg His Gly Gln Asp Ser Ile Leu Glu Ile Arg Ser Val His
      65                      70                      75                      80

gtg ggc gtc gtg gtc atc aaa gca gtg tcc tca ggc ttc tac gtg gcc 288
Val Gly Val Val Val Ile Lys Ala Val Ser Ser Gly Phe Tyr Val Ala
                      85                      90                      95

atg aac cgc cgg ggc cgc ctc tac ggg tgg cga ctc tac acc gtg gac 336
Met Asn Arg Arg Gly Arg Leu Tyr Gly Ser Arg Leu Tyr Thr Val Asp
                      100                      105                      110

tgc agg ttc cgg gag cgc atc gaa gag aac ggc cac aac acc tac gcc 384
Cys Arg Phe Arg Glu Arg Ile Gln Glu Asn Gly His Asn Thr Tyr Ala
                      115                      120                      125

tca cag cgc tgg cgc cgc cgc ggc cag ccc atg ttc ctg gcg ctg gac 432
Ser Gln Arg Trp Arg Arg Arg Gly Gln Pro Met Phe Leu Ala Leu Asp
                      130                      135                      140

agg agg ggg ggg ccc cgg cca ggc ggc cgg acg cgg cgg tac cac ctg 480
Arg Arg Gly Gly Pro Arg Pro Gly Gly Arg Thr Arg Arg Tyr His Leu
                      145                      150                      155                      160

tcc gcc cac ttc ctg ccc gtc ctg gtc tcc tga 513
Ser Ala His Phe Leu Pro Val Leu Val Ser
                      165                      170

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<210> 4

<211> 170

<212> FRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: FGF-23 amino acid sequence

<400> 4

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Met Arg Arg Arg Leu Trp Leu Gly Leu Ala Trp Leu Leu Leu Ala Arg
      1                      5                      10                      15

Ala Pro Asp Ala Ala Gly Thr Pro Ser Ala Ser Arg Gly Pro Arg Ser
                      20                      25                      30

Tyr Pro His Leu Glu Gly Asp Val Arg Trp Arg Arg Leu Phe Ser Ser
                      35                      40                      45

Thr His Phe Phe Leu Arg Val Asp Pro Gly Gly Arg Val Gln Gly Thr
                      50                      55                      60

Arg Trp Arg His Gly Gln Asp Ser Ile Leu Glu Ile Arg Ser Val His
                      65                      70                      75                      80

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5

Val Gly Val Val Val Ile Lys Ala Val Ser Ser Gly Phe Tyr Val Ala
85 90 95

Met Asn Arg Arg Gly Arg Leu Tyr Gly Ser Arg Leu Tyr Thr Val Asp
100 105 110

Cys Arg Phe Arg Glu Arg Ile Glu Glu Asn Gly His Asn Thr Tyr Ala
115 120 125

Ser Gln Arg Trp Arg Arg Arg Gly Gln Pro Met Phe Leu Ala Leu Asp
130 135 140

Arg Arg Gly Gly Pro Arg Pro Gly Gly Arg Thr Arg Arg Tyr His Leu
145 150 155 160

Ser Ala His Phe Leu Pro Val Leu Val Ser
165 170

<210> 5

<211> 208

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: FGF-9 amino acid sequence

<400> 5

Met Ala Pro Leu Gly Glu Val Gly Asn Tyr Phe Gly Val Gln Asp Ala
1 5 10 15

Val Pro Phe Gly Asn Val Pro Val Leu Pro Val Asp Ser Pro Val Leu
20 25 30

Leu Ser Asp His Leu Gly Gln Ser Glu Ala Gly Gly Leu Pro Arg Gly
35 40 45

Pro Ala Val Thr Asp Leu Asp His Leu Lys Gly Ile Leu Arg Arg Arg
50 55 60

Gln Leu Tyr Cys Arg Thr Gly Phe His Leu Glu Ile Phe Pro Asn Gly
65 70 75 80

Thr Ile Gln Gly Thr Arg Lys Asp His Ser Arg Phe Gly Ile Leu Glu
85 90 95

Phe Ile Ser Ile Ala Val Gly Leu Val Ser Ile Arg Gly Val Asp Ser
100 105 110

Gly Leu Tyr Leu Gly Met Asn Glu Lys Gly Glu Leu Tyr Gly Ser Glu
115 120 125

Lys Leu Thr Gln Glu Cys Val Phe Arg Glu Gln Phe Glu Glu Asn Trp
130 135 140

6

Tyr Asn Thr Tyr Ser Ser Asn Leu Tyr Lys His Val Asp Thr Gly Arg
 145 150 155 160
 Arg Tyr Tyr Val Ala Leu Asn Lys Asp Gly Thr Pro Arg Glu Gly Thr
 165 170 175
 Arg Thr Lys Arg His Gln Lys Phe Thr His Phe Leu Pro Arg Pro Val
 180 185 190
 Asp Pro Asp Lys Val Pro Glu Leu Tyr Lys Asp Ile Leu Ser Gln Ser
 195 200 205

<210> 6

<211> 207

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: FGF-16 amino acid sequence

<400> 6

Met Ala Glu Val Gly Gly Val Phe Ala Ser Leu Asp Trp Asp Leu His
 1 5 10 15
 Gly Phe Ser Ser Ser Leu Gly Asn Val Pro Leu Ala Asp Ser Pro Gly
 20 25 30
 Phe Leu Asn Glu Arg Leu Gly Gln Ile Glu Gly Lys Leu Gln Arg Gly
 35 40 45
 Ser Pro Thr Asp Phe Ala His Leu Lys Gly Ile Leu Arg Arg Arg Gln
 50 55 60
 Leu Tyr Cys Arg Thr Gly Phe His Leu Glu Ile Phe Pro Asn Gly Thr
 65 70 75 80
 Val His Gly Thr Arg His Asp His Ser Arg Phe Gly Ile Leu Glu Phe
 85 90 95
 Ile Ser Leu Ala Val Gly Leu Ile Ser Ile Arg Gly Val Asp Ser Gly
 100 105 110
 Leu Tyr Leu Gly Met Asn Glu Arg Gly Glu Leu Tyr Gly Ser Lys Lys
 115 120 125
 Leu Thr Arg Glu Cys Val Phe Arg Glu Gln Phe Glu Glu Asn Trp Tyr
 130 135 140
 Asn Thr Tyr Ala Ser Thr Leu Tyr Lys His Ser Asp Ser Glu Arg Gln
 145 150 155 160
 Tyr Tyr Val Ala Leu Asn Lys Asp Gly Ser Pro Arg Glu Gly Tyr Arg
 165 170 175
 Thr Lys Arg His Gln Lys Phe Thr His Phe Leu Pro Arg Pro Val Asp
 180 185 190

7

Pro Ser Lys Leu Pro Ser Met Ser Arg Asp Leu Phe His Tyr Arg
 195 200 205

<210> 7

<211> 117

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: FGF-22

<220>

<221> MOD_RES

<222> (1)

<223> Any amino acid

<400> 7

Xaa Gly Met Leu Ala Ser Tyr Ser Val Ala Val Ala Met Val Thr Thr
 1 5 10 15

Arg Gly Val Ala Ser Arg Leu Tyr Leu Asp Ser Asn His Lys Gly Asp
 20 25 30

Leu Tyr Ala Ser Val Arg Leu Ala Gln Glu Ser Val Phe Trp Gly Gln
 35 40 45

Ser Glu Glu Asn Trp Ser Tyr Thr His Ser Ser Asn Leu Tyr Lys His
 50 55 60

Val Asp Thr Arg Arg Arg Tyr Tyr Val Pro Leu Asn Gln Gly Ala Thr
 65 70 75 80

Pro Ser Ala Gly Thr Arg Ser Leu Arg Arg Gln Asn Tyr Thr His Val
 85 90 95

Leu Pro Arg Pro Val Asp Pro Asp Lys Val Pro Glu Leu Tyr Lys Asp
 100 105 110

Ile Leu Ser Gln Ser
 115

<210> 8

<211> 208

<212> PRT

<213> Xenopus laevis

<400> 8

Met Ala Pro Leu Ala Asp Val Gly Thr Phe Leu Gly Gly Tyr Asp Ala
 1 5 10 15

Leu Gly Gln Val Gly Ser His Phe Leu Leu Pro Pro Ala Lys Asp Ser
 20 25 30

Pro Leu Leu Phe Asn Asp Pro Leu Ala Gln Ser Glu Arg Leu Ser Arg
 35 40 45

8

Ser Ala Pro Ser Asp Leu Ser His Leu Gln Gly Ile Leu Arg Arg Arg
 50 55 60
 Gln Leu Tyr Cys Arg Thr Gly Phe His Leu Gln Ile Leu Pro Asp Gly
 65 70 75 80
 Asn Val Gln Gly Thr Arg Gln Asp His Ser Arg Phe Gly Ile Leu Glu
 85 90 95
 Phe Ile Ser Val Ala Ile Gly Leu Val Ser Ile Arg Gly Val Asp Thr
 100 105 110
 Gly Leu Tyr Leu Gly Met Asn Asp Lys Gly Glu Leu Phe Gly Ser Glu
 115 120 125
 Lys Leu Thr Ser Glu Cys Ile Phe Arg Glu Gln Phe Glu Glu Asn Trp
 130 135 140
 Tyr Asn Thr Tyr Ser Ser Asn Leu Tyr Lys His Gly Asp Ser Gly Arg
 145 150 155 160
 Arg Tyr Phe Val Ala Leu Asn Lys Asp Gly Thr Pro Arg Asp Gly Thr
 165 170 175
 Arg Ala Lys Arg His Gln Lys Phe Thr His Phe Leu Pro Arg Pro Val
 180 185 190
 Asp Pro Glu Lys Val Pro Glu Leu Tyr Lys Asp Leu Met Gly Tyr Ser
 195 200 205

<210> 9

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Illustrative peptide

<400> 9

Leu Tyr Gly Ser

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<210> 10

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Illustrative peptide

<400> 10

His Phe Leu Pro

1

9

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<210> 11
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Illustrative
      peptide

<400> 11
Val Gln Gly Thr Arg
  1                      5

<210> 12
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Illustrative
      peptide

<400> 12
Arg Ile Glu Glu Asn Gly His Asn Thr Tyr
  1                      5                      10

<210> 13
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Illustrative
      peptide

<400> 13
Gln Phe Glu Glu Asn Trp Tyr Asn Thr Tyr
  1                      5                      10

<210> 14
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Illustrative
      peptide

<400> 14
Ala Gly Thr Pro Ser Ala
  1                      5

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10

<210> 15
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Illustrative
peptide

<400> 15
Ala Ala Glu Arg Ser Ala
1 5

<210> 16
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: 6X His tag

<400> 16
His His His His His His
1 5